



Water-Data Report 2008

01480015 RED CLAY CREEK NEAR STANTON, DE

Lower Delaware Basin
Brandywine-Christina Subbasin

LOCATION.--Lat 39°42'56.7", long 75°38'23.8" referenced to North American Datum of 1983, New Castle County, DE, Hydrologic Unit 02040205, on right bank at downstream side of westbound lane of bridge on State Highway 4, near Stanton, and 0.9 mi upstream from mouth.

DRAINAGE AREA.--52.4 mi².

SURFACE-WATER RECORDS

PERIOD OF RECORD.--October 1988 to current year.

REVISED RECORDS.--WDR MD-DE-DC-04-1: 2003 (P).

GAGE.--Water-stage recorder. Datum of gage is 0.00 ft above National Geodetic Vertical Datum of 1929.

REMARKS.--Records good below 1,000 ft³/s and fair above. Records for estimated daily discharges (missing record, ice effect), are fair. Low flows augmented at times by inflow from Hoopes Reservoir located 5.7 mi upstream from gage on unnamed tributary to Red Clay Creek, capacity 2,000,000,000 gal. Water from Brandywine Creek is pumped into Hoopes Reservoir and is released into Red Clay Creek during periods of low flow. Water from Red Clay Creek is used for municipal supply. **No releases from Hoopes Reservoir in the 2008 water year.** U.S. Geological Survey satellite collection platform at station. Several measurements of water temperature were made during the year.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,300 ft³/s and (or) maximum (*):

| Date | Time | Discharge (ft ³ /s) | Gage height (ft) |
|--------|------|--------------------------------|------------------|
| Feb 13 | 1245 | *1,610 | *13.46 |
| Sep 6 | 2230 | 1,590 | 13.31 |

Minimum discharge, 15 ft³/s, Oct. 9.

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DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2007 TO SEPTEMBER 2008
DAILY MEAN VALUES

[e, estimated]

| Day | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
|--------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|-------|
| 1 | 18 | 39 | 40 | 72 | 329 | 67 | 79 | 56 | 57 | 29 | 24 | 18 |
| 2 | 17 | 35 | 44 | 60 | 216 | 65 | 75 | 54 | 48 | 28 | 23 | 17 |
| 3 | 17 | 34 | 181 | 52 | 77 | 63 | 67 | 53 | 46 | 26 | 23 | 17 |
| 4 | 18 | 34 | 61 | e50 | 61 | 61 | 109 | 52 | 130 | 26 | 21 | 17 |
| 5 | 18 | 34 | 49 | e50 | 54 | 158 | 76 | 50 | 91 | 29 | 21 | 17 |
| 6 | 19 | 36 | 46 | 52 | 52 | 87 | 71 | 46 | 56 | 29 | 21 | 348 |
| 7 | 19 | 35 | 42 | 52 | 53 | 86 | 65 | 43 | 50 | 36 | 20 | 234 |
| 8 | 17 | 34 | 50 | 50 | 47 | 481 | 62 | 44 | 46 | 37 | 19 | 37 |
| 9 | 39 | 33 | 54 | 49 | 46 | 202 | 60 | 190 | 43 | 28 | 19 | 43 |
| 10 | 46 | 34 | 56 | 47 | 46 | 106 | 60 | 87 | 42 | 42 | 26 | 74 |
| 11 | 64 | 33 | 56 | 66 | 42 | 93 | 59 | 59 | 51 | 29 | 49 | 29 |
| 12 | 38 | 33 | 50 | 63 | 43 | 87 | 104 | 80 | 40 | 25 | 24 | 30 |
| 13 | 23 | 46 | 63 | 52 | 800 | 82 | 68 | 82 | 38 | 24 | 22 | 67 |
| 14 | 20 | 43 | 87 | 58 | 208 | 81 | 62 | 57 | 37 | 38 | 21 | 31 |
| 15 | 19 | 54 | 53 | 50 | 101 | 80 | 59 | 54 | 46 | 31 | 23 | 27 |
| 16 | 19 | 57 | 324 | 46 | 86 | 81 | 57 | 140 | 38 | 25 | 22 | 24 |
| 17 | 19 | 41 | 115 | 48 | 76 | 76 | 57 | 92 | 36 | 24 | 20 | 23 |
| 18 | 18 | 39 | 65 | 89 | 119 | 73 | 56 | 75 | 34 | 23 | 18 | 23 |
| 19 | 30 | 88 | 54 | 76 | 95 | 131 | 55 | 92 | 35 | 23 | 18 | 22 |
| 20 | 105 | 58 | e50 | 56 | 75 | 230 | 58 | 126 | 31 | 25 | 18 | 21 |
| 21 | 25 | 48 | 48 | e44 | 70 | 96 | 61 | 116 | 32 | 26 | 17 | 22 |
| 22 | 21 | 44 | 46 | e45 | 75 | 83 | 53 | 70 | 33 | 22 | 18 | 22 |
| 23 | 21 | 42 | 79 | 45 | 77 | 79 | 54 | 61 | 32 | 41 | 18 | 21 |
| 24 | 25 | 40 | 136 | 45 | 71 | 74 | 54 | 56 | 32 | 206 | 18 | 21 |
| 25 | 39 | 40 | 60 | e44 | e78 | 74 | 52 | 54 | 30 | 40 | 17 | 21 |
| 26 | 81 | 46 | 56 | e42 | 78 | 72 | 52 | 52 | 30 | 28 | 17 | 22 |
| 27 | 739 | 60 | 100 | 40 | 82 | 71 | 54 | 52 | 31 | 36 | 17 | 27 |
| 28 | 102 | 46 | 62 | 40 | 69 | 72 | 116 | 63 | 43 | 45 | 17 | 72 |
| 29 | 53 | 42 | 125 | 40 | 64 | 68 | 129 | 50 | 31 | 28 | 17 | 47 |
| 30 | 45 | 41 | 73 | 47 | --- | 65 | 63 | 48 | 30 | 25 | 20 | 30 |
| 31 | 40 | --- | 113 | 42 | --- | 66 | --- | 52 | --- | 24 | 20 | --- |
| Total | 1,774 | 1,289 | 2,438 | 1,612 | 3,290 | 3,210 | 2,047 | 2,206 | 1,319 | 1,098 | 648 | 1,424 |
| Mean | 57.2 | 43.0 | 78.6 | 52.0 | 113 | 104 | 68.2 | 71.2 | 44.0 | 35.4 | 20.9 | 47.5 |
| Max | 739 | 88 | 324 | 89 | 800 | 481 | 129 | 190 | 130 | 206 | 49 | 348 |
| Min | 17 | 33 | 40 | 40 | 42 | 61 | 52 | 43 | 30 | 22 | 17 | 17 |
| Cfsm | 1.09 | 0.82 | 1.50 | 0.99 | 2.17 | 1.98 | 1.30 | 1.36 | 0.84 | 0.68 | 0.40 | 0.91 |
| In. | 1.26 | 0.92 | 1.73 | 1.14 | 2.34 | 2.28 | 1.45 | 1.57 | 0.94 | 0.78 | 0.46 | 1.01 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 2008, BY WATER YEAR (WY)

| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
|-------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Mean | 57.8 | 63.6 | 81.5 | 91.0 | 85.6 | 117 | 101 | 74.9 | 74.7 | 57.4 | 45.6 | 78.0 |
| Max | 147 | 147 | 240 | 220 | 188 | 229 | 216 | 138 | 220 | 246 | 141 | 354 |
| (WY) | (2004) | (2005) | (1997) | (1996) | (2004) | (2000) | (2005) | (1989) | (2003) | (1989) | (2004) | (2003) |
| Min | 19.6 | 19.8 | 19.1 | 34.6 | 24.5 | 50.6 | 38.0 | 39.7 | 23.7 | 14.4 | 19.8 | 17.7 |
| (WY) | (2002) | (1999) | (1999) | (2002) | (2002) | (2002) | (2002) | (1995) | (1999) | (2002) | (2002) | (2002) |

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SUMMARY STATISTICS

| | Calendar Year 2007 | | Water Year 2008 | | Water Years 1989 - 2008 | |
|---|--------------------|---------------------|-----------------|--------------------|-------------------------|--------------|
| Annual total | 28,987 | | 22,355 | | | |
| Annual mean | 79.4 | | 61.1 | | 77.2 | |
| Annual mean[‡] | 79.4 | | 61.1 | | 77.0 | |
| Highest annual mean | | | | | 149 | 2004 |
| Lowest annual mean | | | | | 29.3 | 2002 |
| Highest daily mean | 1,680 | Apr 15 | 800 | Feb 13 | ^e 6,000 | Sep 15, 2003 |
| Lowest daily mean | 16 | Sep 25 ^a | 17 | Oct 2 ^b | 7.0 | Sep 12, 1995 |
| Annual seven-day minimum | 17 | Sep 24 | 17 | Aug 23 | 9.2 | Sep 6, 2002 |
| Maximum peak flow | | | 1,610 | Feb 13 | ^c 17,400 | Sep 15, 2003 |
| Maximum peak stage | | | 13.46 | Feb 13 | ^d 25.52 | Sep 15, 2003 |
| Instantaneous low flow | | | 15 | Oct 9 | ^f 6.8 | Sep 12, 2002 |
| Annual runoff (cfsm) | 1.52 | | 1.17 | | 1.47 | |
| Annual runoff (cfsm)[‡] | 1.52 | | 1.17 | | 1.47 | |
| Annual runoff (inches) | 20.58 | | 15.87 | | 20.02 | |
| Annual runoff (inches)[‡] | 20.58 | | 15.87 | | 19.95 | |
| 10 percent exceeds | 124 | | 94 | | 126 | |
| 50 percent exceeds | 53 | | 48 | | 51 | |
| 90 percent exceeds | 20 | | 21 | | 22 | |

[‡] Adjusted for inflow since June 1994.

^e Estimated.

^a Sept. 25, 30.

^b Oct. 2, 3, 8, Aug. 21, 25-29, Sept. 2-5.

^c From rating curve extended above 5,000 ft³/s on the basis of runoff comparison and drainage area ratios with Red Clay Creek at Wooddale, DE (01480000).

^d From flood marks.

^f May have been lower during periods of missing gage-height record.

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